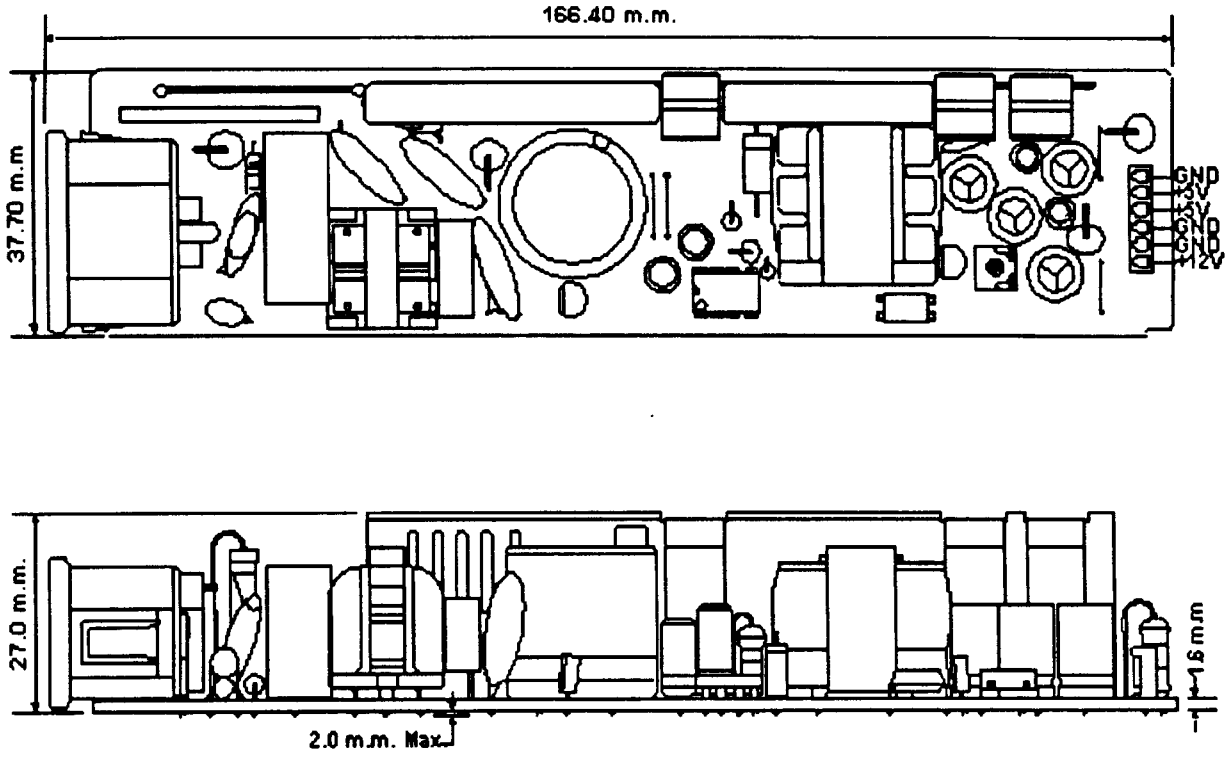
2000 SERIES



SCOPE

This specification defines the performance characteristics of a 20 watt +5 VDC @ 1.0 A +12 VDC @ 1.2 A, switching power supply. The specification also defines world wide safety requirements and environment conditions.

1.0 INPUT REQUIREMENTS

1.1 Line Voltage (VAC):
90 VAC - 264 VAC ±10% / 47Hz to 63 Hz input

1.2 Inrush Current:
50 A Max. @ 240 VAC under the worst case load and cold start
25 A Max. @ 110 VAC under the worst case load and cold start

1.3 Input Current:
1.0 A Max.

1.4 Efficiency:
70% Min. At full load and 115 VAC input.

1.5 Input Transient Protection:
The output shall be isolated from the input and the supply shall be able to withstand without permanent damage. Power line transients as defined in IEC 801-4 or IEC 801-5, line to neutral 1 kV line to neutral with floating ground, 2 kV

2.0 OUTPUT REQUIREMENTS

VOLTAGE	LOAD CURRENT			TOLERANCE	RIPPLE/NOISE
	MIN	MAX	PEAK*	TOTAL REGULATION	VOLTS P/P
+5.00 VDC	0.2 A	1.0 A	2.5 A	± 5%	60 mV
+12.0 VDC	0.0 A	1.2 A	2.5 A	± 10%	120 mV

*NOTE 2.3

2.1 Output Voltage:
(1) 5.0 VDC ± 5% at output load 0.1 A- 0.45 A
(2) 12.0 VDC ± 5% at output load 0.0 A- 0.9 A

2.2 Output Ripple:
(1) 60 mV_{p-p} Max. at full load for 5.0 VDC
(2) 120 mV_{p-p} Max. at full load for 12.0 VDC

The ripple measurement is made at the cable output connector across a 0.1μF ceramic capacitor in parallel with a 10μF tantalum capacitor for each output being tested using an oscilloscope set at a bandwidth of 20 MHz with the line voltage set at 115 VAC and the output at maximum load.

2.3 Output Voltage:
(1) 5.0 VDC ± 5% at output peak load 2.5 A
(2) 12.0 VDC ± 5% at output peak load 2.5 A
Peak loads are limit to 500 ms duration at a 10% duty cycle.

2.4 Turn On Time:
3 second Max. at 115 VAC input.

3.0 PROTECTION

3.1 Short Circuit Protection:
For any output shorted to ground, grounded output will not damage this power supply. A short to ground will be defined as a maximum of 0.1 Ω as seen by the output connection of the power supply.

4.0 ELECTROMAGNETIC REQUIREMENTS

The radiated and conducted emissions of this AC adapter complies with the requirement of FCC part 15 J class B and CSIPR 22 (EN55022) class B.

5.0 SAFETY REQUIRMENTS

5.1 The Power Supply Will Be Approved For The Following Agency Requirements:
(a) UR
(b) CSA 22.2 level 3
(c) TUV

5.2 Hi-Pot Test:
Hi-Pot A: Primary - secondary (FG) – 1500 VAC 60 Hz for 60 sec or DC equivalent 2121 VDC for 60 sec. If DC voltage used for test the voltage should ramp up and down with a 1 second rise time.
Hi-Pot B: Transformer primary - secondary - 3750 VAC for 1 minute (component level).

5.3 Ground Continuity Test:
0.1 Ω Max. at 25 A/10 sec.

5.4 Input Leakage Current:

0.75 mA Max.

6.0 ENVIRONMENT

6.1 Temperature And Humidity:

Operating temperature is 5 °C to 55 °C.
Operating humidity is 15% to 95% RH.
Storage temperature is - 40 °C to 80 °C.
Storage humidity is 90% Relative.

6.2 Altitude:

Operating: 5000 feet above sea level(32 °C)
Storage: 5000 feet above sea level.

6.3 Mechanical Shock Test:

Operating: 10G, 11 ms, half sine, one shock input in each of three mutually perpendicular axis, for a total of six shock input.
Storage: 100G, trapezoid, 180 IN/S velocity change one shock input per direction in each of three mutually perpendicular axis, for a total of six shock input.

6.4 Mechanical Vibration Test:

Operating: 0.75G zero to peak, 5 to 500 Hz, 0.5 octaves/minute, one cycle, 5 to 500 to 5 Hz per axis in each of three mutually perpendicular axis.
Storage: 1.5G zero to peak, 5 to 500 Hz, 0.5 octaves/ minute, one cycle, 5 to 500 to 5 Hz per axis in each of three mutually 0.025G squared/Hz, nominal 3.5Grms level, one hour per axis, in each of three mutually perpendicular axis for a total duration of three hours.

7.0 M.T.B.F.

7.1 M.T.B.F. shall exceed 200,000 hours when measured at 25 °c ambient, running at 100% duty cycle with the following line and load conditions: output loaded at 80% maximum loads as defined in the specifications. The input line voltage will be set at any level specified in the input voltage range.

7.2 Test Method:

Test verification will be confirmed using either a one-sided (zero failure) 90% confidence level test, or by observed test results as defined below.

Unit failure shall be defined as any unit failing to provide output voltage or short circuit protection, or exceeding the ripple specification limits during the test.
the test environment shall be 30 °c - 45 °c with input line voltage at 230 VAC.
The output loads will be set at the load level as defined in note 7.1.

The M.T.B.F. for the observed test results is defined by equation (1):

(1) observed M.T.B.F. = $\frac{(nt)}{\#failure}$

When no failures occur in a test, the 90% confidence M.T.B.F. is:

(2) M.T.B.F. $\geq \frac{-nt}{\ln \alpha}$

t = time in test
n = sample size
Confidence Level = $1 - \alpha$

8.0 DIMENSIONS

8.1 L x W x H:

166.4 mm x 37.7 mm x 27.0 mm

8.2 Weight:

100 g Typical.